

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous listings and versions of claims in this application.

1. (Currently Amended) A method for preparing a surface of a semiconductor wafer which comprises:

polishing the wafer surface with a polishing solution that has a [[neutral or]] basic pH and includes dispersed solid particles for mechanically abrading the wafer surface and a chemical agent for chemically attacking the wafer surface, with the polishing conducted to obtain a desired planarization of the wafer surface; and

controllably stopping the chemical attack of the wafer surface by progressively introducing a rinsing solution that contains an acidic component into the polishing solution and onto the wafer surface so that the progressive introduction of the rinsing solution reduces the pH of the polishing solution to prevent chemical attack of the wafer surface when polishing stops so as to obtain the [[beyond a]] desired planarization of the wafer surface.

2. (Currently Amended) The method of claim 1 wherein the polishing solution has a basic pH and wherein the stopping of the chemical attack occurs at the same location as in the same polishing device that is used for the polishing and the pH of the polishing solution on the surface of the wafer when polishing stops is a neutral pH.

3. (Previously Presented) The method of claim 1 further comprising cleaning from the wafer surface residues resulting from the polishing.

4. (Original) The method of claim 3 wherein the cleaning step includes applying a cleaning solution comprising water to the wafer surface to remove residue(s) therefrom.

5. (Cancelled)

6. (Original) The method of claim 4 which further comprises drying the wafer prior to subsequent processing.

7. (Original) The method of claim 1 wherein the wafer is made of a silicon material comprising crystalline silicon, silica, glass or quartz.

8. (Currently Amended) The method of claim 1 wherein the polishing solution has a pH of between about seven and ten and the acidic component in the rinsing solution has a pH between about three and five so that the pH of the polishing solution on the surface of the wafer after stopping polishing is a neutral pH.

9. (Currently Amended) The method of claim 8 wherein the polishing solution has a pH of between about eight and ten and the acidic component in the rinsing solution has a pH that is equal or close to about four so that the pH of the polishing solution on the surface of the wafer after stopping polishing is a neutral pH.

10. (Original) The method of claim 8 wherein the chemical agent comprises a nitrogen-containing base.

11. (Previously Presented) The method of claim 1 wherein the acidic component in the rinsing solution comprises a surfactant to assist in the removal of residue by the rinsing solution.

12. (Previously Presented) The method of claim 11 wherein the surfactant in the rinsing solution is a polyoxyalkylene alkyl ether surfactant.

13. (Previously Presented) The method of claim 11 wherein the surfactant is present in the rinsing solution at a critical micelle concentration of about 0.1% or less.

14. (Original) The method of claim 4 wherein the rinsing and the cleaning solutions each include deionized water.

15. (Cancelled)

16. (Original) The method of claim 1 wherein the polishing includes applying a textured material to the wafer surface.

17. (Previously Presented) The method of claim 3 wherein the cleaning comprises applying a textured material to the wafer surface for removing the residue(s).

18. (Original) The method of claim 1 which further comprises treating the wafer surface to form an integrated circuit component that is hosted by material in the wafer layer.

19. (Previously Presented) The method of claim 3 wherein the surface residues are removed by contacting the surface with a surfactant solution comprising a hydrophobic surfactant, a hydrophilic surfactant or a combination of a hydrophobic surfactant and a hydrophilic surfactant.

20. (Currently Amended) [[The]] A method of claim 3, for preparing a surface of a semiconductor wafer which comprises:

wherein the polishing the wafer surface is conducted with a polishing plate that includes a polishing solution that has a basic pH and includes dispersed solid particles for mechanically abrading the wafer surface and a chemical agent for chemically attacking the wafer surface, with the polishing conducted to obtain a desired planarization of the wafer surface;

controllably stopping the chemical attack of the wafer surface with a separate and the rinsing plate that progressively introduces a rinsing solution that contains an acidic component onto the wafer surface so that the progressive introduction of the rinsing solution reduces the pH of the polishing solution to prevent chemical attack of the wafer surface beyond the desired planarization of the wafer surface; and

cleaning the rinsed wafer with are conducted by a separate rinsing/cleaning plate, with the pH of the solution contacting the wafer progressively changing from basic to neutral during polishing, then from neutral to acidic during acidic rinsing, and from acidic to neutral during cleaning.

21. (New) The method of claim 20 wherein the wafer surface includes a thin silicon layer having a thickness of a few tens of nanometers and that layer is successfully polished to within plus or minus 5 nanometers.

22. (New) The method of claim 1 wherein the wafer surface includes a thin silicon layer having a thickness of a few tens of nanometers and that layer is successfully polished to within plus or minus 5 nanometers.